Practice B Exponential Growth Write an exponential growth function to model each situation. Then find the value of the function after the given amount of time. 1. Annual sales for a fast food restaurant are \$650,000 and are increasing at a rate of 4% per year; 5 years 2. The population of a school is 800 students and is increasing at a rate of 2% per year; 6 years 3. During a certain period of time, about 70 northern sea otters had an annual growth rate of 18%; 4 years Write a compound interest function to model each situation. Then find the balance after the given number of years. 4. \$50,000 invested at a rate of 3% compounded monthly; 6 years 5. \$43,000 invested at a rate of 5% compounded annually; 3 years 6. \$65,000 invested at a rate of 6% compounded quarterly; 12 years

- 1. Find a bank account balance if the account starts with \$100, has an annual rate of 4%, and the money left in the account for 12 years.
- 2. In 1985, there were 285 cell phone subscribers in the small town of Centerville. The number of subscribers increased by 75% per year after 1985. How many cell phone subscribers were in Centerville in 1994?

Problem Solving

Exponential Growth and Decay

Write the correct answer.

- 1. A condo in Austin, Texas, was worth \$80,000 in 1990. The value of the condo increased by an average of 3% each year. Write an exponential growth function to model this situation. Then find the value of the condominium in 2005.
- 2. Markiya deposited \$500 in a savings account. The annual interest rate is 2%, and the interest is compounded monthly. Write a compound interest function to model this situation. Then find the balance in Markiya's account after 4 years.
- 3. Twelve students at a particular high school passed an advanced placement test in 2000. The number of students who passed the test increased by 16.4% each year thereafter. Find the number of students who passed the test in 2004.
- 3. Bacteria can multiply at an alarming rate when each bacteria splits into two new cells, thus doubling. If we start with only one bacteria which can double every hour, how many bacteria will we have by the end of one day?
 - 5. The population of Winnemucca, Nevada, can be modeled by P=6191(1.04)^t where t is the number of years since 1990. What was the population in 1990? By what percent did the population increase by each year?
 - 6. You have inherited land that was purchased for \$30,000 in 1960. The value of the land increased by approximately 5% per year. What is the approximate value of the land in the year 2011?